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April 16, 1999

Mr. Dale N. Hatfield  
Chief, Office of Engineering and Technology  
Federal Communications Commission  
2000 M Street, NW, Room 480  
Washington, DC 20554

RE: Final Disruption Report

Dear Mr. Hatfield:

Pursuant to the requirements of the Commission's Order in CC Docket 91-273, released February 27, 1992, BellSouth Telecommunications, Incorporated submits a Final Service Disruption Report for a service outage that occurred on March 19, 1999.

The attached final report completes our response on the March 19, 1999 outage. It includes an update of the information previously provided in the 120-minute Initial Service Disruption Report that was sent to the Commission's Watch Office on March 23, 1999.

If you have any questions concerning this report, please contact the undersigned.

Sincerely,



Ben G. Almond  
Vice President-Federal Regulatory

Attachment

cc: Robert Kimball

## FINAL SERVICE DISRUPTION REPORT

This Final Service Disruption report is filed by BellSouth Telecommunications Inc., in accordance with both the First and Second Report and Order Amendment of Part 63.100 of the Federal Communications Commission's rules. A 120-Minute Initial Service Disruption Report for this March 19, 1999 Aiken, South Carolina and North Augusta, South Carolina outage was filed with the FCC Watch Officer on March 23, 1999.

### GEOGRAPHIC AREA AFFECTED:

E911 customers served by the Batesburg, Aiken, and North Augusta host central offices (and their remotes: Bath, Beach Island, Johnston, New Ellington, Graniteville, and Edgefield) in LATAs 434 and 442 in South Carolina could have been affected.

### DURATION OF OUTAGE:

Further investigation of the outage confirmed the 6601 T4x from Batesburg to Johnston facility failed at 7:52am EST and was restored at 12:52 pm EST for a total duration of 5 hours.

### ESTIMATED NUMBER OF CUSTOMERS AFFECTED:

There were approximately 82,819 customers affected by this E911 service interruption.

### TYPES OF SERVICE AFFECTED:

The fiber cable that was cut served 2 t4x facilities. One t4x switched to protect and caused no blockage. The other t4x did not switch to protect; however, blockage was only seen on one BellSouth Corporate Network trunk group between Augusta Main and Columbia-Senate Street (which was not reportable).

Batesburg, Aiken, and North Augusta host central offices (and their remotes: Bath, Beach Island, Johnston, New Ellington, Graniteville, and Edgefield) were E911 trunking isolated and unable to reach their appropriate PSAP.

### ESTIMATED NUMBER OF BLOCKED CALLS:

There were approximately 2,164 BellSouth Corporate Network blocked calls during this event.

## APPARENT OR KNOWN CAUSE OF THE INCIDENT:

During a cable laying procedure, a contractor for another company was boring on the Norfolk and Southern railway right-of-way at the intersection of Highway 23 and McQueen St. in Johnston, South Carolina. The site of this damage was between BellSouth's Batesburg and Johnston central offices. When the contractor's horizontal boring bit became stuck, they began digging with a backhoe and severed a BellSouth fiber cable.

## ROOT CAUSE:

Cut fiber cable –digging error, contractor

## METHODS USED TO RESTORE SERVICE:

At 7:52am EST, BellSouth surveillance personnel began investigating various facility alarms and blocked calls. Tickets were issued and field forces were dispatched to locate the suspected damage. A non-major teleconference bridge was established with various centers to help with restoral. The cut was found at 9:07am EST with an estimated restoral of four hours. It was determined after the failure, that due to the cut various centers had lost all monitoring and remote access capability to North Augusta and Aiken (which contributed to BellSouth's inability to fully analyze in realtime the scope of the outage).

- At 11:00am EST, the teleconference bridge was disrupted and had to be moved to another number (due to a scheduling conflict). The center responsible for reporting initial service disruptions to the FCC missed this information and was delayed in joining the new bridge.

On the new bridge number, it was reported to BellSouth at 11:48am EST that Edgefield County PSAP was functioning but was not receiving calls from multiple locations. E911 discussions continued about the stated hosts and remotes being trunking isolated from E911. BellSouth escalated the event to "Major" and began more detailed recovery procedures by dispatching field forces to end offices to perform E911 reroutes.

Around 12:10pm EST, personnel coordinating the bridge realized centers were not on the new bridge number and initiated direct calls and ensured they joined at the new location. BellSouth's "FCC outage" reporting center had not heard the above discussion, so normal FCC reporting procedures weren't initiated. (Note: During further reporting relative to this outage, the above E911 trunking isolation information was discussed with the reporting center on March 23, 1999 and the initial service disruption was immediately filed with the FCC Watch Officer.

The fiber cable was spliced and the service was returned to normal at 12:52 pm EST (before the local forces could implement reroutes on E911 from the end offices).

#### STEPS TO PREVENT RECURRENCE:

BellSouth is investigating moving some of the Emergency Service trunks (from the central offices to the E911 tandem) from the carrier system that failed to a sonet carrier system.

This incident was discussed in detail with the contractor and BellSouth will include the contractor during future damage reduction meetings. Billing for time and material will also be pursued.

BellSouth's teleconference bridge management procedures are in the process of being updated to ensure pertinent centers are in attendance when new bridge locations are established.

#### EVALUATION OF EFFECTIVENESS AND APPLICATION OF NRC RECOMMENDATIONS AND BEST PRACTICES:

BellSouth has reviewed the Network Reliability Council's Compendium of Technical Papers and Section A addresses cable dig ups. Specifically, 5.2.1 addresses causes of dig ups and notes that there may be instances of accurate locates with digging errors (lack of hand digging). BellSouth implemented several issues noted in Paragraph 6.1.3 by reiterating proper digging procedures, billing the contractor, and enhancing the contractor's awareness by involving them in future damage reduction meetings.

Additional Information about this E911 Service Disruption

Date of Incident: March 19, 1999

Location: Johnston, South Carolina

1. Has the root cause occurred before on this particular system? (If yes, explain)  
No
2. Is there any (facility) diversity element in this system? (If yes, explain)  
No
3. Is the 911 system tied to a tandem? Yes, Columbia-Senate Street  
If so, did tandem switch go out? No
4. Was the role of the PSAP(s) lost? No  
(Could the PSAP(s) function?) Yes
5. Were there any intercept (special announcement) messages available? No  
If yes, what kind.
6. Were any major emergencies missed because of the outage? No